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SURGICAL CASES

For B. C. Brodie Esq^r
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OBSERVATIONS :

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BY

RICHARD CARMICHAEL, M. R. I. A.

SURGEON OF THE RICHMOND HOSPITAL, HOUSE OF INDUSTRY, &c. &c.

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AN ACCOUNT
OF THE
EXTIRPATION
OF A
TUMOUR OF THE NECK,
ENGAGING THE PAROTID GLAND,

By RICHARD CARMICHAEL, M. R. I. A.

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&c. &c,

Read by Dr. Brooke, 1st June, 1818.

THE annexed engraving will afford, more clearly than any verbal description, a correct notion of the appearance and extent of a tumour of the neck and jaws, which I removed on the 14th of December, 1817. It was drawn by my pupil, Mr. Farrel, the day before the operation, who also took the following measurements of its external surface:—Vertically from the external ear, (which it pushed forcibly upwards out of its natural situa-

tion) to the neck on which it descended, it measured five inches—Horizontally, immediately below the ear at its superior part, three inches and a half; and at its inferior part, full five inches; so that it gradually increased in volume towards its lower termination. It was of a firm consistence, but not of that cartilaginous hardness which cancer, in this situation, usually possesses. It evidently adhered to the bones; but I thought it possible that it might be merely attached to the mastoid process, and to the angle of the inferior jaw bone, as it was very moveable on insinuating the fingers under the lowest and most projecting part. In this, however, as will appear in the subsequent account of the operation, my hopes were not realized; for it was found to be fixed to the transverse process of the first cervical vertebra, and to the bones which form the basis of the skull.

The patient, a respectable shopkeeper, residing in Parson's-town, was a man of temperate habits, about forty years of age. The tumour, according to his statement, was first observed about the size of a kidney-bean, lying below the ear, fourteen years previous to the operation. It increased slowly, and in four years had attained the size of an egg; at which time it was removed by an eminent practi-

tioner, who resides in the same town with the patient. The tumour, however, re-appeared shortly after the operation, and encreased with greater rapidity than before.

About five or six years ago, I saw him, in consultation with surgeons Richards, Peile, and Colles; at this time, the tumour had extended considerably on the face; but had not arrived at one half of the dimensions I have stated above. The opinion of the consultation, at this period was, that there were grounds to believe that the parotid gland was engaged in the disease, and that we could not recur to operation with safety, or any prospect of success. Shortly afterwards, more in compliance with the solicitations of my patient than from any sanguine expectations of success, I applied a strong escharotic (the arseniate of iron) to the tumour, which destroyed a very considerable portion of the part that spread on the cheek, and which afterwards healed without difficulty. The tumour, however, notwithstanding the constant application of cold evaporating washes, continued gradually to increase, and was attended with occasional shooting pains.

In November, 1817, finding the tumour increase to an alarming extent, he again came to Dublin for

advice; and as operation, however perilous the attempt, presented the only chance of saving his life, I fairly laid before him the hazard as well as the hopes involved in this bold measure. As a favourable indication, I stated that the result of the trial which had been made with caustic, afforded a strong presumption, that the tumour was not of a cancerous or malignant nature; and, therefore, afforded a very different prospect of success, than if it were otherwise;—and I added, that the knowledge at which the profession had arrived, since the last consultation, with respect to the possibility of tying the carotid artery, in case of necessity, enabled us to obviate the dangers of hæmorrhage during the operation.

Having visited the country, for the purpose of consulting his friends on the propriety of the measure, and of settling his affairs, he returned with a determination to submit to the operation. This resolute temper of mind he maintained to the last, exerting, throughout, such a degree of intrepidity and coolness, as could alone have enabled me to prosecute the extirpation of a mass, such as I have described, situated in the midst of the most important veins, arteries, and nerves in the frame, and requiring my undivided attention for the space of an hour and upwards.

The patient was laid on a table, inclined to his left side, and Messrs. Peile, Colles, and Todd assisted me in the operation. I began, by making an incision the entire length of the tumour, commencing it immediately below the cartilage of the ear, and extending it beyond the inferior part of the tumour, along the internal edge of the sterno-mastoid muscle. The incision was carried considerably below the tumour, for the purpose of exposing the trunk of the common carotid, in order to admit either of compressing it, or of passing a ligature round it, in case such a measure should afterwards become necessary by the occurrence of any unmanageable hæmorrhage. While this object was pursued, two threads were passed round the external jugular, and the vein divided between them, in order to prevent any embarrassment, which *its* hæmorrhage might produce. The artery, as well as the mastoid muscle, were much displaced by the pressure of the tumour, which had pushed them closer to the trachea than their natural situation. However, as soon as it was deemed sufficiently exposed to admit of its circulation being commanded by the pressure of the fingers of an assistant, I proceeded to the other steps of the operation: these were first to dissect back the integuments at either side of the incision, so as to expose the external or superficial part of the tumour. It was then detached from

the meatus auditorius, and parts about the ear ; and also from the mastoid process behind, and from the angle of the jaw before, to which parts it firmly adhered.

I now made use of the handle of the scalpel and my fingers, to separate it from the deep-seated parts lying between the temporal bone, and ascending process of the lower jaw, where it was imbedded to a depth far beyond our expectation. This part of the operation was necessarily tedious, as considerable difficulty was experienced in detaching the tumour from its connexion with the surrounding parts.

A firm band or root, connected with the deepest part of the tumour, having a large artery distinctly beating upon its surface, was found to resist all my efforts to disengage it ; and it became absolutely necessary to have recourse to the knife. But previous to its division, I requested Mr. Todd to be prepared to compress the carotid trunk, in case of the occurrence of hæmorrhage. The band was then divided with a buttoned bistoury close to the tumour, with the view of avoiding the artery ; in this, however, I was disappointed. Instantly an alarming gush of blood, which evidently came from a large vessel, followed the division ; and the danger appeared the more imminent, as the pres-

sure which Mr. Todd applied with all the force he could exert upon the carotid trunk, was actually incapable of repressing the torrent. There was not a moment to be lost. Mr. Colles plunged a dry sponge to the bottom of the wound, and firmly pressed on the bleeding vessel, while I made a horizontal section of the tumour, till I arrived at the cavity occupied by the sponge, with the view of exposing as quickly as possible the mouth of the bleeding vessel. This was accomplished in sufficient time to save the patient's life ; and a large artery, which was probably the trunk of the facial or labial, was tied in two places ; that is, at each side of an orifice, resembling the vent of an organ-pipe made by the knife, not by dividing the artery, but by taking off a slice of its surface. When the ligatures were fixed, the pressure from the carotid was removed, and no farther hæmorrhage occurred.

I now had time to examine that portion of the tumour which remained, and found that it firmly adhered to the bones of the basis of the skull, and to the transverse process of the atlas. It was now proposed by some of the friends who so ably and anxiously assisted me, that we should proceed no farther, but leave this portion as it stood, without incurring the danger of another hæmorrhage ; but this advice, however prudent, I had the courage

to resist, being determined to make an effort to detach the remainder of the tumour, without the use of the knife.

I first proceeded to remove with the fingers that portion which was fixed to the temporal bone, between the mastoid and stiloid processes. This was accomplished with some force and great pain to the patient, as the trunk of the portio dura of the seventh pair of nerves was separated with the diseased mass, a circumstance which was afterwards found to cause the paralysis of that side of the face. I next removed by the same means another portion, which was fixed to the transverse process of the atlas; still another small portion remained so firmly fixed to the bones at the basis of the skull, that it was deemed more prudent to pass a ligature around its base, than to make any farther attempts at its extirpation; and when this was accomplished, a piece of lint was wrapt round the portion included in the ligature, in order to prevent any after communication with the surrounding parts. The wound was now cleared of coagulated blood, and the edges brought together with straps of adhesive plaster, allowing the ligatures of the large artery already mentioned, as well as one or two smaller ones, together with those passed round the external jugular vein, and the portion of the tumour, to hang out of the

wound. Notwithstanding the magnitude of this operation, the loss of blood which he had sustained, and the pain which he had endured with so much fortitude as not even to allow a murmur to escape him, this strong-minded individual walked from the operation table to his bed in an adjoining room, declining every kind of assistance which the pupils present were anxious to afford him.

Immediately after this protracted effort of magnanimity, Mr. Fitzpatrick (for it would be unjust to withhold his name) suffered some alarming symptoms. He became chilly and cold, but at length his heat was sufficiently restored by warm drinks, and jars of hot water placed at his feet: he also took an anodyne draught. In the evening there was a considerable oozing of blood, but a continued pressure for two hours with the hand at last stopped it. He complained of considerable pain and difficulty of swallowing; a second draught was directed.

2nd day. He appeared as well as could in reason be hoped for; pulse 86, excessive thirst; great pain in his throat, attended with considerable difficulty of swallowing. His bowels were freed during the day by means of cathartic pills, and injections.

3rd day. He appeared to be going on well, but did not sleep during the night; pulse 104; the medicine had operated well. Chicken-broth was allowed him during the day; and at night he took a draught containing forty drops of tinct. of opium.

4th day. The draught had not the intended effect. He could not sleep, yet did not complain of pain; pulse 98. His eye and general cast of countenance were good; his bowels were freed with injections, and he took during the day an increased quantity of chicken-broth, and in the evening the anodyne draught was repeated.

5th day. I found him muttering and delirious, but on questions being distinctly asked him, he answered rationally. The nurse reported that he had been raving during the entire night, and anxious to rise from his bed; his pulse were 100 but weak. Conceiving that this delirium was owing to that state of the brain which is induced by loss of blood, and want of rest, I did not hesitate to give him wine and strong broth for his support.

On this day I removed the dressings. The wound at the upper part, about the length of an inch, where the integuments had been thin and adhered

to the tumour, appeared black and sloughing; but adhesion had taken place through the remainder of its extent. The right side of his head and scalp were considerably swollen, and the eye nearly closed.

6th day. He had scarcely any remains of delirium. His manner was, however, quick and unnatural; pulse 90 and firmer. The preceding night had afforded him the only sleep he enjoyed since the operation, and he took a couple of glasses of sherry in his whey during the night. Had an opposite course been pursued, as a recurrence to blood-letting and cathartics, under a suspicion that the delirium was dependant on the inflammation of the wound extending to the brain in its vicinity, I have no doubt that it would have been attended with the worst consequences; and so enfeebled was the condition of this man, and so reduced his powers, that I am persuaded he would have fallen a victim to the slightest depletion.

7th day. He was perfectly calm and collected in his mind; his pulse 90 and firm. He slept well during the preceding night, and did not now complain of any pain in swallowing. The discharge from the wound was more abundant but still of a serous nature.

8th, 9th, 10th, and 11th, days. The ligatures came away, and also the piece of slough or dis-

eased substance which was included in a ligature. The discharge had become purulent; the swelling of his face and scalp was dispersed, and his strength was daily improving. His recovery was now decided; but the wound was not healed until the 20th of January, thirty-six days from the time of the operation. There was no hardness or any appearance of a suspicious nature.

The muscles, however, of the side of his face, where the tumour had been, were paralyzed, in consequence, as already remarked, of the division of the trunk of the portio dura of the seventh pair of nerves. This affection, I was happy to observe in the following June, was considerably lessened; and there is therefore every expectation that, as the inosculating nerves increase in size and strength, the slight deformity which it occasions, will totally disappear. The cicatrix of the wound was reduced to a mere line, and there was not the slightest indication of any diseased action going forward in the part.

The success of this operation proves the possibility of extirpating the parotid gland, if circumstances should point out the propriety of such a measure. If, however, I should be again called upon to perform, in another, the same formidable operation, I would in the first instance, pass a

ligature under the carotid trunk, which might be tightened or not, as occasion should require. This previous step had been my intention in the present instance ; but from which I was dissuaded by some of my judicious and experienced assistants ; however it is apparent that by not adhering more strictly to a well considered opinion, I was very near finding ample cause for repentance.

OBSERVATIONS
ON
VARIX AND VENOUS
INFLAMMATION;

WITH INSTRUCTIONS FOR OPERATING WITH SAFETY TO THE
FEMORAL VEIN

IN POPLITEAL ANEURISM.

BY
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&c. &c.

Read by Dr. Brooke, 7th of September, 1818.

FIVE or six years ago, a case of venous inflammation occurred under my care, after the operation of tying the saphena vein, on account of a varicose state of the vessels of the leg, and an ulcer situated above the inner angle. The notes I then took have unfortunately been lost; but the case made so strong an impression upon me, that the following circumstances are fresh in my memory. The patient, a stout young man, was an intern of the Richmond Surgical Hospital. A few days after the vein was tied in the manner recommend-

ed by Sir E. Home, he became uneasy and restless, complained of oppressed breathing, and had a rapid pulse, furred tongue, great thirst, flushed countenance, and also tenderness and swelling of the thigh. These symptoms were followed in a few days by strong rigors, frequent sighing, and a sense of weight about the præcordia. On the accession of these complaints, the ligature round the vein was immediately cut away; and recourse was afterwards had to repeated venæsection, purgatives, antimonials, fomentations of the limb, and all those means calculated to lessen general as well as local excitement. Notwithstanding these measures were pursued with activity, the disturbance of his system increased, and the limb became more swollen.

The cerebral functions were also engaged, as evinced by occasional incoherency and delirium. In these, as well as in his other symptoms, the disease, in eight or ten days from its commencement, assumed very much the character of a typhus fever. New and unlooked for appearances now took place; four or five tumours formed on different parts of his body—on his hips, shoulders and breast, which quickly suppurated—some of these I punctured as soon as a fluctuation was evident, and the integuments discoloured. About an ounce or an ounce and a half of healthy looking

matter was discharged from each tumour ; but it was foetid, and attended at the same time with a disengagement of some very offensive gas, which bubbled through the matter. This extraordinary circumstance I simply detail as it occurred, without pretending to account for it.

These suppurations were not, however, attended with any relief of his symptoms ; the fever, thirst, and general uneasiness still continued ; the limb became enormously swollen without evincing any sign of suppuration, and he sunk so fast as to leave no hope of his recovery. At this juncture, his friends insisted upon taking him to the country, and in all probability he died on the road. Indeed the event appeared to me to be so inevitable, that I regretted an interference which prevented the examination of the body.

Mr. HUNTER was the first to call the attention of the profession to the occurrence of inflammation of the veins, which he attributes chiefly to inattention in closing the orifice of a vein after phlebotomy. Before the publication of his observations on the subject,* the untoward symptoms, which sometimes occurred after venæsection, were

* See Transactions of a Society for the improvement of Medical and Surgical Knowledge,—page 18, vol. I.

in general attributed to a wound of the tendon of the biceps muscle. His view of the subject, however, deserves more attention than it seems to have received. Inflammation of the veins, like inflammation elsewhere, will have its degrees. It may only produce a slight thickening of the coats of the vessel, and of the cellular membrane around the injured part; or it may extend along the vein in both directions exciting the deposition of coagulable lymph, and the final obliteration of its cavity by the adhesion of its sides. But if the inflammation exists in a still higher degree, the internal coat of the vessel will undergo a change to adapt it to the secretion of pus, which, according as it is formed, will, of necessity, mingle with the general mass of blood, except as is sometimes the case, the cavity of the vein is obstructed at different intervals, by the adhesion of its sides, when a chain of abscesses will in consequence form along the course of the vessel.

These abscesses, however, had not formed in the instance I have mentioned, nor in that which I shall presently detail. In both of them it is probable that the great disturbance of the system, and the peculiar typhoid character of the symptoms, may have been owing to the admixture of pus with the general mass of blood.

The only case I have met with in print, which

bears any resemblance to that I have just detailed, is one related by Mr. Hodgson in his valuable work on diseases of the arteries and veins. In this case * the inflammation succeeded venæsection in the arm ; and after the usual febrile symptoms, “ a painful swelling was observed above the clavicle, and in a few days afterwards, another soft diffused swelling was discovered underneath the angle of the lower jaw.” It does not, however, appear that those tumours suppurated. On examination, *post mortem*, among other morbid appearances, it was noticed that the cephalic vein, which had been the one injured, was obliterated as far as the shoulder—that the internal jugular, subclavian, axillary and brachial veins were enlarged and thickened ; and also that the external jugular, and subclavian veins were filled with pus. The diseased appearances were not gradually lost, but terminated abruptly. The heart was healthy.

Notwithstanding the slight attention which has been given to the subject, I am confident that inflammation of the veins is an occurrence much more frequent than is generally imagined ; and that many lives are annually lost from this cause alone, even where its existence has not been suspected. Now that blood-letting is so generally

* Case XLIX—page, 512.

practised in every description of fever, it is incumbent upon practitioners to be aware that a train of symptoms, strongly resembling those of typhus, may arise from venous inflammation, and from which it is difficult to distinguish it, except indeed the inflammation of the orifice and the pain and tenderness along the course of the vessel may lead to a true diagnosis. In extensive wounds or surgical operations, I believe it to be a still more common but unheeded cause of death, and the following case will afford a convincing elucidation of this remark.

CASE II.

James Boyle, æt. 40, was admitted into the Richmond Hospital, on the 20th of May, 1818, on account of a large popliteal aneurism on the right side. On the 25th, I tied the femoral artery immediately above the part where it passes under the sartorius muscle. A silk ligature of two threads was employed, and the ends were cut close to the knot, according to the method recommended by Mr. Lawrence. Nothing particularly worthy of notice occurred during the operation; the artery was fully exposed in a few seconds from the time of its commencement; but some little force was required to pass the aneurismal needle, armed with the ligature, under the artery; and as soon as it was accomplished a gush

of venous blood followed, which in a second or two spontaneously ceased. When the ligature was tightened, the pulsation in the tumour of the ham, which before was strong and manifest, immediately ceased, and a diminution in its volume was even obvious to the eye. After the operation, the patient complained of numbness in the foot, but in every other respect was totally free from uneasiness of any kind. On the day after the operation his pulse was but 75, and the temperature of the affected limb was the same as the other.

On the 3d day, the dressings were removed, and it was found that the wound had apparently healed by the first intention. But on the 5th day a small quantity of pus flowed through an opening in the lower part of the cicatrix. He now began to feel some general uneasiness ; his pulse the following day rose to 90, which since the operation had not exceeded 75. His sleep was disturbed, and his countenance flushed, but he could not point out the particular cause of his uneasiness. Conceiving that an abscess had formed about the ligature, I broke down with the probe the new formed cicatrix, but very little additional matter was discharged.

June the 7th—The thirteenth day from the operation, he had several distinct rigors, followed by increased heat ; the discharge from the

wound, which was of a healthy appearance, had augmented in quantity; and the lower part of the leg had become œdematous. He sighed, or rather moaned, frequently, but was still at a loss to point out any seat of the pain; and he had that listlessness of manner and countenance usually observed in the second or third week of typhus fever.

On the 8th, he had a strong rigor, which continued 15 minutes, and on the 9th, he had three distinct rigors, each followed by a profuse perspiration. His face and neck were in general of a deep red colour, covered with a clammy perspiration; his manner evinced great torpor and debility, and at times he muttered incoherently to himself; pulse 90; tongue brown; the œdema had extended to his knee. Six ounces of blood were taken from his arm, which exhibiting the buffy coat, induced me to extend the depletion to twelve ounces more on the same day. He was also directed a calomel bolus with a cathartic mixture.

10th.—There were no signs of amendment; ten ounces of blood were taken from the arm which also exhibited the buffy appearance. The discharge had rather increased, but there was no lodgement of matter; the entire limb was now swollen and œdematous.

11th.—He was evidently worse; his pulse up-

wards of 100 ; tongue brown and dry ; respiration oppressed and laborious. In the evening he was affected with hiccough, and had another rigor, after which his face, which was hitherto of a deep red, became pale and ghastly, and he was delirious during the night. Wine was now given to him.

12th.—He was decidedly sinking ; pulse 130 ; the integuments in the ham, covering the tumor, were livid and mortified. I made an opening into them, and set free a quantity of putrid coagulum, the contents of the sac. On the morning of the 13th, he died.

Examination.

On removing the integuments in the neighbourhood of the wound, it was ascertained that the discharge of matter had proceeded from a small abscess immediately behind, and adjoining the inner or pubal side of that part of the artery where the ligature had been applied. The ligature was found firmly fixed to the artery ; and immediately above it, on slitting the artery open, a firm conical portion of lymph, mixed with coagula of blood about half an inch in length, evidently organized, was found to fill up the vessel ; so that, as far as the process of union in the artery was concerned, nothing could be more satisfactory. We next

proceeded to examine the aneurismal sac, the surface of which was found dark and sloughy, and capable of containing about four ounces of fluid. The artery was evidently ruptured for about an inch in extent: two thirds of the arterial cylinder were deficient, while the remaining third (that which lay next the bone) connected those parts of the artery which continued entire, both above and below the sac; and there was no appearance which could induce us to suppose that the latter was formed by the dilatation of the coats of the vessel. So far in the dissection there was nothing ascertained to explain the symptoms which occurred after operation, or account for the death of the patient; but these were sufficiently explained on an examination of the veins. It was found that the crural vein, lying behind, and in close contact with the artery where the operation had been performed, had been wounded by the needle, a circumstance which accounts for the gush of venous blood which took place during the operation, on passing the aneurismal needle under the artery; yet no portion of the vein was included in the ligature. On slitting it open, its interior surface was found lined with pus and organized lymph, exhibiting the appearance which membranes present in a suppurating state. This appearance extended downwards almost to the ham, where it suddenly ceased, but the vein was rendered impervious at this part by a deposition

of coagulable lymph. The disease also extended a considerable way down the saphena; upwards I traced it as far as the common iliac vein, but I could not proceed farther, as the friends of the deceased were waiting for the body, and I had been under the necessity of promising them that I should only examine the limb; but it is probable that the inflammation extended to the cava, and perhaps to the heart. The diseased parts are preserved among the morbid anatomical preparations of the Richmond Hospital.

It is almost needless to enlarge upon the points in which this case affords a useful lesson. In so far as the artery is concerned, it proves that the small ligature recommended by Mr. Laurence, and the removal of its ends close to the knot, is sufficient to produce adhesion of the sides of the artery, and at the same time does not prevent the healing of the wound by the first intention, a circumstance which must obviate in a great measure much of the danger attendant upon this operation. 2d. It evinces the necessity of avoiding the vein. In the present instance, the artery was fully exposed before the ligature was passed; and when resistance was felt to the passage of the needle, I conceived that it was owing to the dense cellular membrane surrounding the artery; but whoever examines with attention the close contact, nay, adhesion of the femoral vein to the

artery from the tendon of the triceps almost to Poupart's ligament, will be convinced of the great difficulty of passing a ligature around the latter without wounding the former. This circumstance cannot but be of frequent occurrence, although in every instance, venous inflammation may not be the consequence. Some months ago a man underwent the operation for popliteal aneurism in the Meath-street Hospital. Secondary hemorrhage ensued, and the patient died.

The gentleman who performed the operation, an expert and able anatomist, informed me that on examination, it was ascertained that the ligature had passed through the vein, and that its coats were found in a suppurating and sloughing state, the extent of an inch or two above and below the wound; but the artery was also in a sloughing state, and it was obvious that an immediate communication had taken place between the two vessels so as to create a true varicose aneurism. As union had not occurred between the sides of the artery, we cannot attribute the fatal event to so small an extent of inflammation as that stated to have taken place in the vein; the case, however, cannot fail to be useful by evincing how liable this vessel is to be wounded, although the greatest care may have been employed in the act of passing the aneurismal needle under the artery. It is true a large vein may be wounded with impunity, but this affords no sound argument against

our adopting every adequate precaution to avoid an accident, which as we have seen, has caused at least one death, and for aught we know to the contrary, others beyond number.

The only part of the thigh from Poupart's ligament to the tendon of the triceps, in which the femoral vein is not completely covered by the artery, lies within the space which extends from Poupart's ligament to where the artery meets the sartorius muscle. At that part of this space most distinct from Poupart's ligament, the vein begins to disclose itself at the pubal side of the artery, from beneath which it emerges more and more as it ascends. This is the spot now generally chosen for the operation, on account of the superficial situation of the artery, which enables us to feel its pulsations before the skin is divided; but it is also the most advantageous part for tying the ligature, on account of the natural exposure of the vein and the consequent facility this circumstance affords for avoiding that vessel, for the actual view will enable the operator to pass the needle between the two vessels without wounding either, or disturbing them from their natural situation. This of course will be more easily done by introducing the needle on the pubal side of the artery, where the vein presents itself to view, and may therefore easily and safely be passed between

them when they are sufficiently exposed by previous dissection.

The close proximity and connexion of the vein with the artery, and the danger of including the former in the ligature, did not of course escape the attention of the many experienced surgeons who have written on the subject ; but the easy and safe mode of accomplishing this object, which I have just pointed out, has not, I believe, been noticed by any. The following are Mr. Hodgson's directions on this part of the operation : "The coats of the artery being fairly exposed, the ligature is to be passed round it with a common aneurismal needle, the point of which is to be kept in close contact with the artery, so as to avoid including the femoral vein, or the branches of the anterior crural nerve."*

From the fatal termination of the cases which I have detailed, and from numerous trials I have made on the dead subject, I can assert with confidence that Mr. Hodgson's directions do not afford us a sufficient security against inflicting an injury on the vein : for if we pass the needle from the external or ilial side of the artery, we cannot be certain that the vein is not included in the ligature, or that it will not be wounded by the needle, while

* P. 437.

passing under the artery ; but on the other hand, if we pass it from the internal or pubal side where the vein emerges from beneath the artery, and where the needle can obviously be insinuated between the vessels, no danger can arise of injuring the vein—a material object, which may thus be accomplished without disturbing the artery from its bed, or treating it with that unnecessary degree of violence which is involved in the following directions of Professor Scarpa : “ With the point of the fore finger of the left hand already touching the femoral artery, the surgeon will separate this artery from the cellular substance which ties it laterally and posteriorly to the contiguous muscles : making the point of the same finger pass gradually under and behind the superficial femoral artery, supposing that the surgeon has not enormously large fingers, he will raise it alone from the bottom of the wound, or, where it cannot be avoided, along with the great femoral vein. If it is along with the femoral vein, *holding the artery and vein thus raised and almost without the wound*, the surgeon with a bistoury or spatula, or simply with the fingers of his right hand, will cautiously separate the vein from the artery, only in the space corresponding to the point of the finger which supports the artery. He will then pass behind the denuded raised artery a large-eyed crooked needle with a blunt point, carrying in the eye near

to the point two waxed ligatures, each composed of six threads.†

With respect to the first part of these directions, that in which we are desired to separate with the fore finger the artery from the vein, while they are lying in their natural situation, I altogether deny the possibility of profiting by this suggestion ; so close is the connexion that exists between these two vessels, that handling them in the manner described would considerably endanger their safety ; and with respect to the second part of his advice, that in which we are desired to raise in our fingers the artery and vein almost *without the wound* for the purpose of separating them with a bistoury or spatula, I need not point out to the enlightened practitioners of these countries the danger attendant upon that degree of violence, which must be necessary to drag the artery and vein from their natural situation almost out of the wound. But if it shall be found that the mode I propose will enable the surgeon to pass the ligature round the artery without disturbing it from its situation or injuring the vein, it must necessarily follow that the operation for popliteal aneurism will in a great measure lose the formidable character with which it is at present invested. For the frequent fatal terminations of this operation under the most promising circumstances hi-

† Scarpa on Aneurism, translated by Wishart, p. 266.

therto so difficult to explain, has been a great drawback on the eclat attending the rapid improvement of British surgery in the treatment of aneurism.

In corpulent persons it is not always easy to discover the course of the artery by its pulsations ; it would therefore be eligible to have some positive rules by which we may ascertain with precision not only the line of the artery, but also the exact spot at which the vein begins to emerge from beneath it, which is the place for performing the operation.

In a middle sized man the vein begins to emerge from under the artery, at five fingers breadth or three inches beneath a transverse line, ranging with the upper edge of the symphysis pubis,* and is fully exposed at four fingers breadth or two inches and a half below this line, to admit of being laid bare by dissection, so as to enable the operator to pass the needle with ease and safety between the two vessels ; this spot lies considerably below the origin of the profunda, and the junc-

* In order that our measurements should be correct and undeviating, they should be made from a fixed point, such as is afforded by the os pubis ; and not from an indistinct line, whose position varies whenever the thigh is bent or extended, which is the case with respect to Poupart's ligament.

tion of the saphena with the femoral vein ; the latter after this junction, completely emerges from under the artery, on the pubal side of which, it lies in the same plane, until both vessels are concealed from our view by Poupart's ligament.

If the pulsation of the artery is not so obvious as to direct us where to make our incision, we may err in approaching too near the pubis, and thus, (independent of other consequences) embarrass the subsequent steps of the operation, by opening the saphena vein ; but this may be avoided by measuring the distance between the symphysis pubis, and the most anterior point of the spinous process of the ileum. In middle sized male subjects this measurement usually gives five inches and a half, and in females half an inch or an inch more, one half of this measurement then brought to a transverse line from the upper edge of the symphysis pubis, will give the exact situation of the ilial side of the artery, at the place where the ligature is to be passed, which is at two inches and a half, or at the most three inches from this point along the groin towards the knee. In cutting down upon this spot, we come upon the pubal edge of the sartorius, where that muscle meets the artery, and here we have a strong dense fascia, (the fascia lata) extending from the muscle over the vessels, but it is considerably more dense over the latter ; this fascia may be

divided with safety on the sartorius, and by pursuing the dissection of it, we expose first the artery, and then the vein ; and when the vessels are thus sufficiently exposed, we may insinuate between them with ease the aneurismal needle, which is to be pushed under and close to the artery, without disturbing it from its bed ; when the point of the needle appears at the opposite (the ilial) side of the artery, we must satisfy ourselves before we force it through, if we meet with any obstruction, that it is merely produced by cellular membrane, and is not occasioned by either the vein, or a branch of the crural nerve (saphenus) which is usually found lying in contact with the ilial side of the artery, and which is therefore in great danger of being injured, or included in the ligature.

It may possibly be said that the precautions I have dwelt on, will not be requisite to an expert operator, but to this I can only reply, that although I do not take upon me to appreciate the extent of any man's dexterity, yet I can confidently assert that the needle cannot be passed under the artery, even in the dead subject in any other spot, or in any other manner than those I have proposed, without the greatest danger of inflicting a wound on the vein or interfering with the profunda artery ; unless indeed the operator shall previously separate the vein from the back

of the artery, (as recommended by Scarpa,) but to which it is so firmly attached, that the cutting edge only, and not the handle of the knife or fingers can effect it, and few I believe would have the rashness to use the knife in this situation.

Several instances recur to my recollection, of patients sinking under amputations, after having exhibited a train of symptoms similar to those detailed in the last case ; but at the time not suspecting any affection of the veins, I did not examine into their state after the death of the patients. I am however persuaded, that this circumstance is a frequent cause of such deaths as follow amputations, and other extensive wounds, and I shall illustrate this observation by the following case for which I am indebted to my friend Mr. Read of Mercer's Hospital.*

* When this paper was going to press, I met with the following passage in Mr. Hennen's valuable observations on Military Surgery, concerning the various causes of death after amputation. "In some cases the veins, in others the arteries, and in others again both the veins and arteries, will be found inflamed, from the point of the stump to the very auricle and ventricle ; and in many parts either lined with coagulable lymph, or filled with purulent matter to various distances. In the dissections conducted by Messrs. Dobson, Bingham and Crofton, after the battle of Waterloo, we met with no less than twelve cases where the veins were inflamed, and where at the same time purulent matter was found in the arteries with a considerable thickening of their coats."

This passage, among numerous other instances, demonstrates

CASE III.

“Elizabeth Mitchell, aged 40, was received into Mercer’s hospital 28th Jan. 1818, for a compound dislocation of the ankle joint, which accident had happened the preceding evening. She refused to submit to amputation on the day of her admission; suffice it to say, that extensive mortification nearly to the knee was the consequence.

When the suppurative line had fairly formed, amputation was again urged and consented to. During the period of the sympathetic fever, there was great disturbance of all the digestive organs; frequent vomitings; more than ordinary yellowness of the skin and eyes; the vesications that arose on the limb were filled with an orange coloured serum. On the 17th day after the accident, I amputated above the knee, making a flap of the extensor muscles, and tying the vessels with silk twist ligatures as Mr. Laurence proposes. Nothing extraordinary occurred in the operation, and

the advantages, which the surgical art is likely to derive from the extensive opportunities for observation so long afforded to our military surgeons, and which could scarcely be neglected under the present most intelligent and admirable system with which the army medical department is conducted. If I had sooner perused this work, it is probable I should have curtailed many of the observations in this paper as unnecessary.

the muscles appeared healthy, but the integuments were slightly œdematous. Matters went on well until the morning of the 5th day, (and partial adhesions of the flap had taken place) when I was informed she had passed a very bad night.

February 18, from Case Book I make the following extract:—

Pulse 114, small and easily compressible; skin dry; heat less than natural; the yellow suffusion which had in some degree subsided, assumed a deeper tinge; the tongue covered with brown fur; did not complain of thirst; had vomited in the night; complained of great depression and sense of sinking about the præcordia; sighed frequently; a thin and foetid discharge from the stump, but small in quantity; did not complain of any pain in the stump, except what arose from changing the dressings.

20th.—This morning she had a long and violent rigor. On examining the stump, we found all the new adhesions had given way; the discharge like the day before, but in increased quantity; the limb though more swollen, had the œdematous character; pressure on any part above the face of the stump produced no pain.

I have no further note during her life, but re-

collect she had frequent severe rigors. I could not at the time trace them to any satisfactory cause, by any examination I made either of the stump, or with a view to discover if any of the solid viscera were engaged. She died the 14th day after the operation."

Dissection.

"The surface of the stump beneath the integuments had gangrened, and a large clot of blood adhered to it; the artery was uninjured, though the cellular membrane surrounding it for some distance was gangrenous; a conical clot of coagulable lymph filled it of about an inch and a half in length; the vein on being split up was found full of pus, nearly as high as Poupart's ligament; above this, it was covered with irregular patches of coagulable lymph like a soft membrane. On scraping this off, the vein appeared very vascular, which appearance was continued as far as its junction with the corresponding iliac to form the cava; which last was not inflamed. The liver was sound, and the gall bladder loaded with a dark viscid bile. Her friends being anxious to remove the body I could not examine farther."

In the three preceding cases of inflammation of the veins, we find that the disease was marked by strong rigors, great oppression and a sense of ex-

treme debility and weight about the præcordia; these symptoms were, no doubt, owing to the formation of matter, and the influence which it must produce on the general system when mixed with the mass of blood. In this stage of the disease, it is more than probable that it would be too late to adopt with any advantage blood-letting, and the other means calculated to lessen inflammation. In fact, if pus has been already formed and mixed with the blood, it is probably no longer in the power of art to remedy the evil, and the patient can only be left to his fate. But, if after an operation or extensive wound, we should find that in four, five, or six days, the patient who previously was going on well, becomes restless and uneasy with frequent sighing, attended with a quick pulse and flushed countenance; and if at the same time, the wound presents no appearance that can account for these symptoms, we may reasonably suspect the accession of venous inflammation. In this stage of the disorder, we should, therefore, I conceive, resort to the most active blood-letting, cathartics, abundant dilution, and other means calculated to resist the increase of inflammation, and its consequent tendency to the formation of pus. If by these measures, the progress of the inflammation is so far restrained, that no other injury occurs but the deposition of coagulable lymph, and the obliteration of the affected vein, we save the life of the patient. But there can be

little expectation of this favourable event, if rigors have already denoted the formation of matter.

It is scarcely necessary to state that after the occurrence of the first case detailed in this paper, I never ventured upon the general practice of tying the vena saphena on account of a varicose state of the veins of the leg ; and, until Mr. Brodie's proposition of dividing the branches instead of the trunk was communicated to the public, I contented myself with merely recommending the use of the laced stocking, or the application of the roller, with a view to palliate rather than cure the complaint. But this, I acknowledge, was altogether unavailing among those who are its most numerous victims, the labouring poor. For the laced stocking can only be procured at an expense beyond their means ; and few of the lower orders of this or any other country, could be prevailed on to take the trouble of daily applying a long roller with the necessary exactness.

I lost no time, however, in availing myself of Mr. Brodie's operation as soon as it became known to me. His reasons for supposing that an equal danger does not attend a wound of the branches, as an injury of the trunk appeared to me very convincing, and the successful instances he details of his practice left no doubt of its value.

As I do not find that his operation has been noticed in any succeeding publication, it is apparent that it has not received the attention it so highly merits ; and I conceive it will be useful to the public, as well as doing justice to that distinguished surgeon, to whom the profession is already so deeply indebted, to state the cases in which I tried the mode he recommends, and with these cases, which I shall detail in the briefest manner possible, I shall conclude the present paper, which has already extended far beyond my calculation.

CASE IV.

Callaghan Mc. Carty was admitted November 13th, 1816, into the Richmond Hospital, on account of a varicose state of the veins of both legs. The right leg was selected for operation, as its veins were more enlarged than those of the other, and to an extent that I had never witnessed in any instance whatever ; there were also on this leg several superficial ulcers, which must have been connected with the veins, as the patient stated that they frequently bled to an alarming extent ; he also mentioned that the pain arising from standing was so great that he was obliged to discontinue his trade as a carpenter.

I selected for operation three groups of veins

which were particularly large and painful upon pressure; they were situated about a hand's breadth below the knee, one on each side, and one in front of the leg.—The instrument employed was made according to Mr. Brodie's directions—a curved sharp-pointed knife, with the cutting edge on the convex side.* The patient complained of considerable pain at the division of each cluster of veins, which subsided in about an hour after the operation. The hemorrhage was immediately stopped by compress and bandage.

15th. The bandages were removed, and it was found that two of the openings had healed.

22nd. The third opening had also cicatrized and all the varicose veins, with the exception of one

* It will be satisfactory to those who have not Mr. Brodie's paper by them, to give the following extract from it, which contains brief and clear directions for using this instrument. "Having ascertained the precise situation of the vein, or cluster of veins, from which the distress of the patient appears principally to arise, I introduce the point of the bistoury through the skin on one side of the varix, and pass it on between the skin and the vein, with one of the flat surfaces turned forwards, and the other backwards, until it reaches the opposite side. I then turn the cutting edge of the bistoury backwards, and, in withdrawing the instrument, the division of the varix is effected."

or two in the front of the leg had nearly disappeared. The pain also in the lower part of the leg which prevented him from standing at his work, was completely relieved. He was therefore discharged the hospital.

CASE V.

John Murphy, admitted November 16th, 1816—on account of a large cluster of varicose veins situated immediately beneath the inner condyle of the femur; there were also four or five small ulcers on the leg, and the complaint was attended with considerable pain, which always increased towards evening.

I determined to try in this case, if a division of the saphena vein, where it passes on the inside of the knee, would prove advantageous, and therefore on the 21st cut the vein across with Mr. Brodie's knife, and in the manner he recommends for dividing the branches; this was followed by acute pain for the space of half an hour; after this operation the cluster of veins was wonderfully lessened in size, and the pain and tenderness with which the vessels had been previously affected gradually diminished. The ulcers soon healed, and he was discharged apparently well on the 16th of December. But he was re-admitted on the 9th of February following; the group of varicose veins be-

low the knee were as large and as painful as before the operation, and several ulcers had appeared on his leg, one of which had bled profusely a few days previous to his application at the hospital.

On the 11th, I divided the cluster of veins according to Mr. Brodie's plan ; a good deal of pain and uneasiness continued in the part, and a small abscess formed where the veins had been divided, which I punctured on the 18th, and which discharged about half an ounce of pus. The part soon healed, the cluster of varicose veins totally disappeared, and he was discharged the hospital well on the 16th of March.

CASE VI.

Anne Serson admitted March 24, 1816, on account of a varicose state of the veins of one of her legs, which from the pain and swelling produced by exercise, prevented her from attending to her business as a servant. A variety of palliative means had been employed without relief, except in one instance. The veins in the leg were so much swelled, that she was apprehensive of their bursting, but the opening of one of them had been attended with temporary benefit. A large painful group on the inside of the leg was selected for operation.

It was performed in the usual manner on the 26th of March, and on the 14th of April she was discharged well.

CASE VII.

Thomas M'Guire admitted May 6th, 1818, on account of a varicose state of the veins of the right leg, which had existed upwards of thirty years, but until the last year had not occasioned any inconvenience. He had also an ulcer situated above the inner ancle. Immediately under the inner condyle, the veins were particularly large and tortuous and painful upon pressure. This group was divided on the day after his admission. The wound healed by the first intention, and he was discharged on the 11th.

He was desired to return to the hospital if he felt any farther inconvenience, but I have not seen him since.

CASE VIII.

John Hoey admitted June 13th, 1818, on account of an enormous enlargement of the branches and trunk of the saphena vein, through the entire extent of the leg and thigh. The complaint

was of five years' duration, and completely incapacitated him from attending to his business. There was also a small painful ulcer on the inside of the leg just above the ankle.

I divided the trunk of the saphena vein on the inside of the knee with Mr. Brodie's knife, and according to his plan. On the 18th there was considerable pain felt at the place of the incision—19th, the pain extended up the thigh in the course of the saphena vein, which was discoloured and tender upon pressure ; considerable symptomatic fever, with great restlessness and total want of sleep ; pulse quick and hard ; tongue brown and furred.

I directed sixteen ounces of blood to be taken from his arm, and the cathartic mixture ; and poultices of bread and water to be applied along the course of the inflamed vein.

21st.—A quantity of serous fluid was discharged from the place of the incision, and the pain and tension of the limb was diminished ; pulse 90. From this period, these alarming symptoms of venous inflammation gradually subsided, and he was discharged on the 5th of July. The operation completely succeeded as the varicose swelling of the veins below the incision had totally disappeared.

CASE IX.

John Kelly admitted June 27th, 1818, on account of a large cluster of varicose veins situated immediately below the internal condyle of the left leg, which was so painful during exertion as to render him totally unable to earn a subsistence. This cluster was divided in the preceding manner, and he was discharged the hospital perfectly well on the 13th of July.

Several other similar cases were operated on according to Mr. Brodie's plan with equal success ; but which I cannot give as I did not take notes. A sufficient number has, however, been adduced to evince the safety and efficacy of his operation.

It will be observed that the only case which was attended with symptoms of venous inflammation (Case VIII.) had not been treated according to his directions ; for in this case the trunk and not the branches was divided. The alarming circumstances that occurred in this instance, may seem at once to confirm the superior advantages attainable by his mode of operating, and impress upon the mind of my reader the danger which attends any injury to the trunks of the larger veins, whatever be the instrument with which the violence is inflicted.



CASE OF
INCURABLE DISEASE
OF THE
A R M,
ARISING FROM
EXTRAORDINARY CIRCUMSTANCES.

BY
RICHARD CARMICHAEL, M. R. I. A.

SURGEON OF THE RICHMOND HOSPITAL, HOUSE OF INDUSTRY, &c. &c.

A young woman was admitted into the Richmond hospital, on the 23d July, 1818, on account of a painful swelling of the left hand and arm, extending considerably above the elbow. The appearance of the limb resembled that which occurs in phlegmasia dolens; the fingers were bent; no fluctuation or symptoms of matter could any where be discovered; the pain was excessive, so as altogether to prevent rest, unless strong anodynes were employed; the symptomatic fever was considerable.

The patient ascribed the complaint to a needle, which she averred had broken in the palm of her hand about six weeks before ; and stated, that at present she felt the point of it at the back of her hand. Upon this part I immediately cut down, but was not so fortunate as to light on the needle. Warm fomentations and poultices were ordered, together with frequent mercurial cathartics, but the pain and tension gradually increased. Sometime afterwards, the skin and fascia covering the muscles a little above the wrist on the fore part of the arm, where the tension was greatest, were divided to the extent of three inches, so as to lay bare the muscles ; but this was not attended with any relief, although the incision was afterwards extended towards the palm of the hand, the original seat of the disease, by dividing the annular ligament of the wrist. A dark coloured fungus in a few days sprung up from the divided parts, which considerably projected beyond the surface of the skin.

The swelling of the arm extended to within three inches or less from the top of the shoulder, where it terminated abruptly. Diarrhæa set in, and her constitution was evidently sinking under the constant pain and irritation of the disease. Amputation was, therefore, recommended and performed on the 21st of September, close to the shoulder joint at the termination of the swelling.

The circulation was completely commanded by pressure on the artery above the clavicle, for there was not sufficient room for the application of a tourniquet.

On examining the limb after amputation, the thickening and enlargement was found to arise altogether from the deposition of lymph and serum, nor was there any where the slightest signs of supuration. The bones of the carpus and extreme ends of the radius and ulna, were observed to be so far softened as to yield, and be easily broken down by the pressure of the nail, probably owing to the absorption of the earthy principle.

In searching for the broken needle, we not only discovered what we sought, but to our surprise, half a dozen others, each about half an inch in length, embedded in the pronator quadratus muscle under the site of the incision; some of them lying between the radius and ulna, and others fixed in the periosteum of the bones. Similar fragments of needles were afterwards found by the pupils—one in the palm of the hand, and others in the fore-arm above the quadratus, but none of them had entered either tendon or nerve.

The muscle in which they lay was almost changed to a firm gelatinous structure, and they were every where surrounded by firm lymph, al-

most of the consistence of softened cartilage, which seems to be the process employed by nature to insulate such extraneous bodies from the surrounding parts, as do not excite suppuration. These fragments, ten in number, I send for the inspection of the association.

It is obvious that so many needles could never have pierced the arm, without the knowledge of the patient, who has every appearance of intelligence and shrewdness, indeed rather too much of the latter, yet on being presented with these needles the day after amputation, she solemnly declared that she knew nothing of having been wounded by more than one.—The superintendants of the Dublin Female Penitentiary, an asylum for reclaimed females, in which she is an inmate, and which is admirably well conducted, have no hesitation in attributing the infliction of these evils to herself; though it is to be presumed the extent of the punishment was little in her contemplation. She had however a taste for this kind of deception, for on another occasion she complained during an entire year, of excruciating pain in her chest, attended with paroxysms of difficult breathing, that seemed often to approach the last gasp; but after enduring such a sufficiency of blisters, and issues, and bleeding both local and general, as Doctor Mills, and Doctor Edward Percival and myself thought it prudent to

prescribe, she suddenly recovered, and with great candour acknowledged that all her complaints had been dissembled; yet to account for all this finesse, which cost her so much bodily pain, she could give no reason more satisfactory than that she had suffered herself to be seduced by the instigations of the devil; but this explication involves a still stranger incongruity, for she has the character of being remarkably devout, and is seldom without a prayer-book in her hand, and a jargon of religious cants in her mouth.—I conjecture that she is not much inclined to bodily exertion, and would rather undergo any torment than work; and possibly she may have derived some little advantages, by exciting the commiseration of the very benevolent ladies who superintend the institution; she, however, when too late, became sensible of her folly, and before the operation I have described, I heard her remark, that she well deserved the punishment she was about to suffer.

I have, I fear, unwarrantably occupied the time of the Association in detailing these circumstances which are foreign to our usual line of investigation; but it is not often we see examples of a propensity so strong and persevering, as to gratify itself at the expense of so much absolute suffering; and, without adverting to the food it affords for reflection to the moral and intellectual

philosopher, it cannot but be useful, in a professional point of view, to be aware of the extraordinary mode in which formidable diseases are sometimes established.





